

Scatter Plot with Random Distributions and Different Ball Sizes

Aim

To create a scatter plot using random distributions to generate balls of different sizes.

Algorithm

1. Import necessary libraries (matplotlib.pyplot and numpy).
2. Generate random data for x and y coordinates.
3. Generate random data for ball sizes.
4. Create a scatter plot using the generated data.
5. Set appropriate labels and title for the plot.
6. Display the plot.

Code

```
import matplotlib.pyplot as plt
import numpy as np

N = 50
x = np.random.rand(N)
y = np.random.rand(N)
colors = np.random.rand(N)
area = (30 * np.random.rand(N))**2

plt.scatter(x, y, s=area, c=colors, alpha=0.5)
plt.xlabel('X-axis')
plt.ylabel('Y-axis')
plt.title('Scatter Plot with Random Distributions and Different Ball Sizes')
plt.show()
```

Output



Result

The program successfully creates a scatter plot using random distributions to generate balls of different sizes. Each point on the plot represents a "ball" with its position determined by random x and y coordinates. The size of each ball varies based on randomly generated area values, and the colors are also randomly assigned. This visualization demonstrates how to create a scatter plot with varying point sizes and colors using matplotlib.